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VEYRON II PREMIUM
1600-12 / 2600-24
MPPT SOLAR INVERTER

User Manual | Version: 1.0

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ABOUT THIS MANUAL

Purpose

This manual describes the assembly, installation, operation, and troubleshooting of this unit. Please read this manual carefully before installations and operations. Keep this manual for future reference.

Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

SAFETY INSTRUCTIONS

> WARNING: This chapter contains important safety and operating instructions. Read and keep this manual for future reference.

1. Before using the unit, read all instructions and cautionary markings on the unit, the batteries, and all appropriate sections of this manual.
2. **CAUTION** -- To reduce risk of injury, charge only deep-cycle lead acid type rechargeable batteries. Other types of batteries may burst, causing personal injury and damage.
3. Do not disassemble the unit. Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
4. To reduce risk of electric shock, disconnect all wiring before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
5. **CAUTION** -- Only qualified personnel can install this device with battery.
6. NEVER charge a frozen battery.
7. For optimum operation of this inverter/charger, please follow required specs to select appropriate cable size. It's very important to correctly operate this inverter/charger.
8. Be very cautious when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
9. Please strictly follow installation procedures when you want to disconnect AC or DC terminals. Please refer to the INSTALLATION section of this manual for details.
10. One piece of 150A fuse is provided as over-current protection for the battery supply.
11. **GROUNDING INSTRUCTIONS** -- This inverter/charger should be connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulations to install this inverter.

12. NEVER cause AC output and DC input short circuited. Do NOT connect to the mains when DC input short circuits.
13. **Warning!!** Only qualified service persons are able to service this device. If errors still persist after following the troubleshooting table, please send this inverter/charger back to local dealer or service center for maintenance.
14. **WARNING:** Because this inverter is non-isolated, only three types of PV modules are acceptable: single crystalline, poly crystalline with class A-rated, and CIGS modules. To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding.
15. **CAUTION:** It's requested to use a PV junction box with surge protection. Otherwise, it will cause damage to the inverter when lightning occurs on PV modules.

INTRODUCTION

This is a multi-function inverter/charger, combining functions of inverter, solar charger, and battery charger to offer uninterruptible power support with portable size. Its comprehensive LCD display offers user-configurable and easy-accessible button operation such as battery charging current, AC/solar charger priority, and acceptable input voltage based on different applications.

Features

- Pure sine wave inverter
- Inverter running without battery
- Configurable input voltage range for home appliances and personal computers via LCD setting
- Configurable battery charging current based on applications via LCD setting
- Configurable AC/Solar Charger priority via LCD setting
- Compatible to mains voltage or generator power
- Auto restart while AC is recovering
- Overload / Over temperature / Short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function

Basic System Architecture

The following illustration shows basic application for this inverter/charger. It also includes the following devices to have a complete running system:

- Generator or Utility
- PV modules

Consult with your system integrator for other possible system architectures depending on your requirements. This inverter can power all kinds of appliances in home or office environments, including motor-type appliances such as tube lights, fans, refrigerators, and air conditioners.

Product Overview

1. LCD display

2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function buttons
6. Power on/off switch
7. AC output
8. AC input
9. Wi-Fi/RS-232/BMS communication port / OTG function
10. Battery input
11. PV input
12. Anti-dust filter

INSTALLATION

Unpacking and Inspection

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside the package:

- The unit x 1
- User manual x 1
- Communication cable x 1

Preparation

Before connecting all wiring, please take off the bottom cover by removing four screws.

Mounting the Unit

Consider the following points before selecting where to install:

- Do not mount the inverter on flammable construction materials.
- Mount on a solid surface.
- Install this inverter at eye level in order to allow the LCD display to be read at all times.
- For proper air circulation to dissipate heat, allow a clearance of approx. 20 cm to the side and approx. 50 cm above and below the unit.
- The ambient temperature should be between 0°C and 55°C to ensure optimal operation.
- The recommended installation position is adhered to the wall vertically.
- Be sure to keep other objects and surfaces as shown in the diagram to guarantee sufficient heat dissipation and to have enough space for removing wires.

> SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON-COMBUSTIBLE SURFACE ONLY.

Install the unit by screwing two screws. It's recommended to use M4 or M5 screws.

Battery Connection

This model can be operated without battery connection. Connect to battery if necessary.

> CAUTION: For safety operation and regulation compliance, it's requested to install a separate DC over-current protector or disconnect device between battery and inverter. Please refer to typical amperage in below table as required fuse or breaker size.

Recommended battery cable size:

Model	Wire Size	Cable (mm^2)	Ring Terminal Dimensions D(mm) / L(mm)	Torque value (max)
VEYRON II PREMIUM 1600-12 VEYRON II PREMIUM 2600-24	1 x 4 AWG	22	6.4 / 29.2	2 ~ 3 Nm

Before connecting the wires, please use a sharp object to puncture the waterproof connector.

AC Input/Output Connection

> CAUTION!! Before connecting to AC input power source, please install a separate AC breaker between inverter and AC input power source. The recommended spec of AC breaker is 20A.

Suggested cable requirement for AC wires:

Model	Gauge	Cable (mm^2)	Torque Value
VEYRON II PREMIUM 1600-12 VEYRON II PREMIUM 2600-24	12 AWG	4	0.8 Nm

Polarities:

- Ground (yellow-green)
- L - LINE (brown or black)
- N - Neutral (blue)

PV Connection

> CAUTION: Before connecting to PV modules, please install separately DC circuit breakers between inverter and PV modules (Use 600VDC/30A circuit breaker). Overvoltage category of PV input is II.

Recommended Panel Configuration:

Inverter Model				

	Max. PV Array Open Circuit Voltage	PV Array MPPT Voltage Range	Start-up Voltage	Max. PV Current
VEYRON II PREMIUM 1600-12 VEYRON II PREMIUM 2600-24	450Vdc	30 ~ 400Vdc	40Vdc +/- 10Vdc	20A

Communication Connection

Serial Connection: Use supplied communication cable to connect inverter and PC. Insert bundled CD to install monitoring software.
Wi-Fi Connection: Equipped with a Wi-Fi transmitter for wireless communication. Download "i.Solar" app from Apple® Store or Google® Play Store. All data loggers and parameters are saved in iCloud.

OPERATION

Power ON/OFF

Once unit is properly installed and batteries connected, press On/Off switch for 3 seconds to turn on the unit.

Operation and Display Panel

LED Indicator	Messages
INV (Green)	Solid On: Powered by utility in Line mode. Flashing: Powered by battery or PV in battery mode.
CHG (Green)	Solid On: Battery fully charged. Flashing: Battery charging.
FAULT (Red)	Solid On: Fault occurs. Flashing: Warning condition occurs.

LCD Setting Programs (Summary)

Program	Description	Selectable Options
01	Output source priority	**SUB** (Utility first), **SOL** (Solar first), **SBU** (SBU priority)
02	Maximum charging current	10A to 100A (default 60A)
03	AC input voltage range	**APL** (Appliance: 90-280VAC), **UPS** (170-280VAC)
05	Battery type	**AGM**, **FLd** (Flooded), **USE** (User-Defined), **PYL**, **LIC**, etc.
09	Output frequency	**50Hz**, **60Hz**

10	Output voltage	**220V**, **230V**, **240V**
16	Charger source priority	**SNU** (Solar & Utility), **OSO** (Only Solar)
30	Battery equalization	**Eds** (Disable), **EEn** (Enable)

Fault Reference Code

Fault Code	Fault Event
01	Fan is locked when Inverter is off.
02	Over temperature or NTC is not connected well.
03	Battery voltage is too high.
04	Battery voltage is too low.
05	Output short circuited or over temperature detected by internal components.
06	Output voltage is too high.
07	Overload time out.
08	Bus voltage is too high.
09	Bus soft start failed.
51	Over current or surge.
52	Bus voltage is too low.
53	Inverter soft start failed.
55	Over DC voltage in AC output.
57	Current sensor failed.
58	Output voltage is too low.
59	PV voltage is over limitation.

SPECIFICATIONS

Table 1: Line Mode Specifications

Model	VEYRON II PREMIUM 1600-12 / 2600-24

Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voltage	230Vac
Low Loss Voltage	170Vac±7V (UPS); 90Vac±7V (Appliances)
High Loss Voltage	280Vac±7V
Nominal Input Frequency	50Hz / 60Hz (Auto detection)
Efficiency (Line Mode)	>95% (Rated R load, battery fully charged)
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)

Table 2: Inverter Mode Specifications

Model	VEYRON II PREMIUM 1600-12	VEYRON II PREMIUM 2600-24
Rated Output Power	Battery mode: 1.2KVA/1.2KW PV+Battery mode: 1.6KVA/1.6KW	Battery mode: 2.5KVA/2.5KW PV+Battery mode: 2.6KVA/2.6KW
Output Voltage Waveform	Pure Sine Wave	
Output Voltage Regulation	230Vac ± 5%	
Nominal DC Input Voltage	12.0Vdc	24.0Vdc

Table 3: Charge Mode Specifications

Model	VEYRON II PREMIUM 1600-12 / 2600-24
Charging Algorithm	3-Step
AC Charging Current (Max)	80Amp (@V_I/P = 230Vac)
Max. PV Array Power	2500W (1600-12) / 4000W (2600-24)
PV Array MPPT Voltage Range	30 ~ 400Vdc
Max. PV Array Open Circuit Voltage	450Vdc

Table 4: General Specifications

Model	VEYRON II PREMIUM 1600-12	VEYRON II PREMIUM 2600-24
Safety Certification	CE	
Operating Temperature Range	-10°C to 50°C	

Humidity	5% to 95% Relative Humidity (Non-condensing)	
Dimension (D*W*H), mm	117.4 x 323.8 x 460.4	
Net Weight, kg	9.8	9.1

TROUBLESHOOTING

Problem	Possible Cause	What to do
Unit shuts down automatically during startup.	Battery voltage is too low (<1.91V/ Cell).	1. Re-charge battery. 2. Replace battery.
Mains exist but unit works in battery mode.	Input protector is tripped / AC inadequate.	Check if AC breaker is tripped and wiring is correct.
Fault code 07 (Overload)	Inverter is overloaded 105% and time is up.	Reduce connected load by switching off equipment.
Fault code 05 (Output short circuit)	Output short circuited or internal overtemp.	Check wiring and remove abnormal load.
Fault code 01 (Fan fault)	Fan is locked or failed.	Replace the fan.
Fault code 59 (PV voltage high)	PV input voltage is beyond specification.	Reduce number of PV modules in series.

APPENDIX I: BMS Communication Installation

When connecting to a lithium battery, it is recommended to use a custom-made RJ45 communication cable to transmit information between the lithium battery and inverter (re-configuring charging voltage, current, cut-off voltage, and controlling start/stop charging).

Pin Assignment (RS485 / CAN): PIN 3 (RS485B), PIN 5 (RS485A), PIN 6 (CANH), PIN 7 (CANL), PIN 8 (GND).

APPENDIX II: Wi-Fi Operation Guide

The Wi-Fi module enables wireless communication between the inverter and monitoring platform. Users can remotely monitor and control the inverter using the **i.Solar** app (available on Apple® App Store and Google® Play Store).

- **Initial Setup:** Turn on unit, connect smartphone to Wi-Fi module (network name starting with ***FC41D_***, default password: ***12345678***).
- **Network Config:** Enter router SSID and password in the app, save settings.
- **Features:** Real-time data monitoring, parameter configuration, remote control, firmware updates, and event logs.